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In re the application **Daniel V. CONRAD, et al.** Confirmation No: **6377**

Serial No: **09/207,130** Group Art Unit: **3639**

Filed: **December 8, 1998** Examiner: **Robinson Boyce, Akiba K.**

For: **Method and System For Using Emulation Objects for Developing Point of Sale Applications**

ENCLOSURES *(check all that apply)*					
■	Appellant's Reply to Supplemental Examiner's Answer	☐	Assignment and Recordation Cover Sheet	☐	After Allowance Communication to Group
	☐ After Final	☐	Part B-Issue Fee Transmittal	☐	Notice of Appeal
☐	Information disclosure statement	☐	Letter to Draftsman	☐	Appeal Brief
	☐ Form 1449	☐	Drawings	☐	Status Letter
	☐ (X) Copies of References	☐	Petition	■	Postcard
☐	Extension of Time Request *	☐	Fee Address Indication Form	☐	Other Enclosure(s) (*please identify below):*
☐	Express Abandonment	☐	Terminal Disclaimer		
☐	Certified Copy of Priority Doc	☐	Power of Attorney and Revocation of Prior Powers		
☐	Response to Incomplete Appln	☐	Change of Correspondence Address		
☐	Response to Missing Parts	*Extension of Term: Pursuant to 37 CFR 1.136, Applicant petitions the Commissioner to extend the time for response for xxxxxx month(s), from to .			
	☐ Executed Declaration by Inventor(s)				

CLAIMS					
FOR	Claims Remaining After Amendment	Highest # of Claims Previously Paid For	Extra Claims	RATE	FEE
Total Claims	0	0	0	$ 50.00	$ 0.00
Independent Claims	0	0	0	$200.00	$ 0.00
				Total Fees	$ 0.00

METHOD OF PAYMENT

☐	Check no. _____ in the amount of $ _____ is enclosed for payment of fees.
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Attorney Name	Janyce R. Mitchell, Reg. No. 40,095
Signature	
Date	August 3, 2005

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Appeal Brief – Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 3, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL NO:

In Re Application of:

Daniel V. CONRAD et al.

Serial No: 09/207,130

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For: METHOD AND SYSTEM FOR USING EMULATION OBJECTS FOR DEVELOPING POINT OF SALE APPLICATIONS

APPELLANT'S REPLY TO SUPPLEMENTAL EXAMINER'S ANSWER

Attorney for Appellants
International Business Machines
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TOPICAL INDEX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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APPELLANT'S REPLY TO SUPPLEMENTAL EXAMINER'S ANSWER

Sir:

Appellant herein files a Reply to the Supplemental Examiner's Answer drafted in accordance with the provisions of 37 C.F.R. § 1.193(b)(1) as follows:

I. REAL PARTY IN INTEREST

A statement identifying the Real Party in Interest is contained in the Appeal Brief.

II. RELATED APPEALS AND INTERFERENCES

A statement identifying the related appeals and interferences is contained in the Appeal Brief.

III. STATUS OF CLAIMS

A statement identifying the status of the claims is contained in the Appeal Brief.

IV. STATUS OF AMENDMENT

A statement identifying the status of amendments is contained in the Appeal Brief.

V. SUMMARY OF THE INVENTION

The present invention provides an improved method, system, and computer-readable media for developing and testing point of sale (POS) applications. The method, system, and computer-readable medium provide a POS environment for developing an application on a development system independently of a point of sale system. The application is for use with POS equipment having a device specialized for the POS equipment. The application is capable of utilizing the device when the application is executed on the POS equipment. The application interfaces with an operating system on the development system. In one aspect, the method, system, and computer-readable media include providing an emulation module that corresponds to the device. The method, system, and computer-readable media also ensure that the application will utilize the emulation module when the application is executed on the development system. The method and system also include executing the application on the development system independently of the POS system. The emulation module and the application emulate the interaction between the application and the device that occurs when the application is actually executed on the point of sale equipment. The emulation module and the application both interface directly with the operating system of the development system. In another aspect, a method for testing an application on a development system is disclosed. In this aspect, the

method and system include providing an emulation object that interfaces directly with the operating system and corresponds to the device. The method further includes ensuring that the application will utilize the emulation object when the application is executed on the development system. Moreover, the emulation object and the application both interface directly with the operating system of the development system. In addition, the application is executed on the development system and it is ensured that the application adequately utilizes the emulation object. Further, the application is executed on the point of sale equipment. Thus, when the application is executed on the development system, the emulation module and the application emulate the interaction between the application and the device that occurs when the application is executed on the point of sale equipment.

Figure 3 of the present application depicts the development system 101 including an operating system 102, the application 15', and the emulation objects 110, 112 and 114. The emulation objects 110, 112, and 114 interface directly with the operating system 102, rather than replacing portions of the operating system 102.

Figures 4-6 depict embodiments of methods 150, 200, and 300 which describe operation of the system 100. In particular, the emulation objects emulate the interaction between the application 15' and the POS devices (not shown) to which the emulation objects (or modules) correspond. This emulation mimics the operation of the POS equipment without requiring that the POS devise be attached to the development system 101. Specification, page 10, lines 6-18. Thus, a true picture the interaction between the conventional application 15' being developed and actual POS device can be obtained on the development system. Moreover, because the emulation objects are coupled to the operating system, rather than replacing portions of the application, the method and system in accordance with the present invention can give the

developer a more accurate indication of the behavior of the application. Specification, page 11, lines 9-14 and page 14, lines 8-11. Furthermore, because the application and emulation module interface directly with the operating system, the emulation need not occur over hardware interfaces of the development system. As a result, the testing and development of the application is improved.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(1) whether claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 are each unpatentable under 35 U.S.C. § 103 as being obvious in light of U.S. Patent No. 5,088,033 (Binkley) in view of U.S. Patent No. 5,812,668 (Weber).

VII. ARGUMENTS

A. Summary of the Applied Rejections

A summary of the applied rejections is contained in the Appeal Brief.

In addition, in the Supplemental Examiner's Answer, the Examiner stated that Binkley, col. 59, lines 31-38 and 54-61 discloses that the emulation module resides with the emulation processor and that the host system or development system's environment comprises device-emulating means for directly interfacing with the target system I/O operation or the application. In response to Appellant's argument that the emulation processor would naturally run the operations system for the target system, the Examiner stated that it would be natural and common in an emulation environment for the application being developed to also interface with the operating system of the emulation processor. The Examiner also noted that Weber's description of a test gateway as well as col. 65, lines 54-63 of Weber indicate that Weber

describes testing of a POS application. The Examiner also argued that the fact that the test gateway responds with simulated transaction responses correspond to the recited emulated responses.

Appellant respectfully requests that the Board reverse the Examiner's final rejection of claims 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, and 20 under 35 U.S.C. § 103 and the Examiner's final rejection of claims 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, and 20 under 35 U.S.C. § 102(e).

B. The Cited Prior Art

The cited prior art is described in Appellant's Brief filed on June 1, 2004. Furthermore, the Examiner cited col. 59, lines 31-38, 50-53, and 54-61 as teaching that the emulation module and the application being developed both interface directly with the operating system of the development system. The Examiner also cited Weber's description of a test gateway and col. 65, lines 54-63 of Weber demonstrating that Weber teaches testing of a POS application.

C. Claims 1-15 Are Not Unpatentable Under 35 U.S.C. § 103.

Appellant respectfully submits that the applied rejections of claims 1, 7, 8, 14, and 15 under 35 U.S.C. § 103 are without merit as the Examiner has completely failed to explain why Binkley in view of Weber teaches or suggests the methods, system, and computer-readable media recited in claims 1, 7, 8, 14, and 15. In particular, Binkley in view of Weber neither teaches nor suggests directly interfacing the application being developed for a POS system and the emulation module emulating a specialized device for the POS system directly with the operating system of the development system.

Appellant respectfully disagrees with the Examiner, including the Examiner's responses to Appellant's arguments. Appellant respectfully stands by the arguments regarding this issue and that can be found in Appellants Brief, filed on June 1, 2004 as well as the Reply to Examiner's Answer.

Further, Appellant acknowledges that independent claims 1, 7, 8, 14, and 15 do not require the use of a single processor in the development system. However, Appellant has argued that the recitation by independent claims 1, 7, 8, 14, and 15 of the emulation module and the application being tested both interfacing with an operating system on the development system renders claims 1, 7, 8, 14, and 15 allowable. Stated differently, claims 1, 7, 8, 14, and 15 recite that the emulation module and the application both interface directly with the same operating system on the development system and are, therefore, allowable.

Appellant respectfully disagrees with the Examiner's argument that in the system of Binkley, if greater than one application is being tested, that the application and the corresponding emulation module would necessarily both interface directly with the same operating system of the development system. Instead, as previously argued, Binkley describes using a host processor and an emulation processor. Appellant respectfully submits that Binkley's use of multiple processors, as well as the application's function, result in two operating systems, neither of which is directly interfaced by both the emulation module and the application being developed. In particular, the emulating processor functions as though it were the central processor of the system being emulated. Binkley, col. 6, lines 39-52. Consequently, Appellant respectfully submits that such an emulation processor would provide a POS operating system analogous to the operating system found on the actual point of sale equipment. The application being developed would interface with this POS operating system.

The emulation module that mimics device for the application is run on the *host* processor in the system of Binkley. The emulation modules, therefore, would interface directly with a second, development operating system that is an operating system for the development system. Consequently, the application would interface *directly* with a POS operating system run by the emulation processor, while the emulation module would interface *directly* with a development operating system of the development system. Thus, the application and the emulation module interface with different operating systems. Even if multiple applications were being simultaneously developed, two applications would interface with the POS operating system of the emulation processor, while the emulation module would interface with the development operating system. Consequently, Binkley fails to teach or suggest *directly* interfacing both the emulation module and the application with the same operating system.

Applicant also disagrees with the Examiner's contention that Appellant's argument that the emulation processor would naturally run the operating system of the target system means that it would be natural and common for the application being developed as well as the emulation modules to interface *directly* with the same operating system. Instead, as discussed above, it would be natural that the application being developed would interface *directly* with a POS operating system of the emulation processor, while the emulation module would *directly* interface with the development operating system of the development system. Consequently, Binkley still fails to teach or suggest the emulation module and the application being tested both interfacing with an operating system of the development system

Weber fails to remedy the defects of Binkley. Appellant has found no mention in Weber of a system for developing an application for use with a point of sale environment in which the application and the emulation module that emulates devices interface directly with the operating

system of the development system. As described in the above-identified Appellant's Brief, Weber describes POS technology. However, Weber relates to the final POS system used by an end user, rather than a mechanism for testing applications being developed for use with a POS system. Thus, as previously argued, Weber fails to teach or suggest the emulation module and the application being tested both interfacing with an operating system of the development system.

Applicant respectfully disagrees with the Examiner that Weber's terming his gateway a test gateway and indicating that responses are simulated changes this conclusion. Although termed a test gateway, the "test" gateway of Weber is used with the final application delivered to and employed by the end user having a POS system. Weber, col. 61, lines 41-48. The test gateway merely allows the merchant to customize the merchant's portion of the generic POS system to the production computer. Weber, col. 62, line 13-col. 63, line 8 and Fig. 50 (describing the "customization" process as including communication with the test gateway for example of a bank's computer). Thus, although the system of Weber simulates actual responses and provides these simulated responses through a test gateway, the functions are performed for an application that has *already completed development.* What Weber describes is customization to a particular end user, not testing during development. Consequently, Weber fails to teach or suggest interfacing emulation modules and the application being developed directly with an operating system. Weber, therefore, cannot remedy the defects of Binkley. Binkley in view of Weber thus fail to teach or suggest the methods, system, and computer-readable media recited in independent claims 1, 7, 8, 14, and 15. Accordingly, Appellant respectfully submits that claims 1, 7, 8, 14, and 15 are allowable over the cited references and requests that the Board reverse the final rejection of claims 1, 7, 8, 14, and 15.

Claims 2, 3, 4, 5, and 6 depend upon independent claims 1. Claims 9, 10, 11, 12, and 13 depend upon independent claim 8. Consequently, the arguments herein apply with full force to claims 2-6, and 9-13. Accordingly, Appellant respectfully submits that claims 2-6 and 9-13 are allowable for the same reasons discussed above with respect to claims 1 and 8 and respectfully requests that the Board reverse the final rejection of claims 2-6 and 9-13.

Accordingly Appellant respectfully requests that the Board reverse the final rejection of claims 1, 2 ,3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 under 35 U.S.C. § 103.

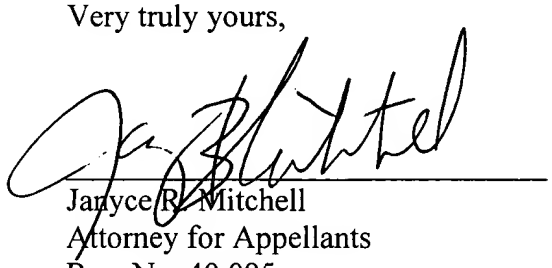
E. Summary of Arguments

For all the foregoing reasons, it is respectfully submitted that Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 (all the claims presently in the application) are patentable for defining subject matter which would not have been obvious under 35 U.S.C. § 103. Thus, Appellant respectfully requests that the Board reverse the rejection of all the appealed Claims and find each of these Claims allowable.

Note: For convenience of detachment without disturbing the integrity of the remainder of pages of this Appeal Brief, Appellant's "APPENDIX" section is contained on separate sheets following the signatory portion of this Appeal Brief.

Authorization for payment of the required Brief fee is contained in the transmittal letter for this Brief. Please charge any fee that may be necessary for the continued pendency of this application to Deposit Account No. 50-0563 (IBM Corporation).

Very truly yours,



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VIII. CLAIMS APPENDIX

1. A method for providing a point of sale environment for developing an application on a development system independently of a point of sale system, the application for use with point of sale equipment having a device, the application capable of utilizing the device when the application is executed on the point of sale equipment, the application interfacing with an operating system on the development system, the method comprising the steps of:

(a) providing an emulation module interfacing directly with the operating system and corresponding to the device;

(b) ensuring that the application will utilize the emulation module when the application is executed on the development system; and

(c) executing the application on the development system independently of the point of sale system, wherein the emulation module and the application emulate the interaction between the application and the device that occurs when the application is executed on the point of sale equipment;

wherein the emulation module and the application both interface directly with the operating system of the development system; and

wherein the device is specialized for the point of sale equipment.

2. The method of claim 1 wherein the step of providing the emulation module further includes the steps of:

(a1) providing an emulation object corresponding to the device.

3. The method of claim 2 wherein the application is platform independent and the emulation object is platform independent.

4. The method of claim 3 wherein the application is a JAVA application and the emulation object is a JAVA emulation object.

5. The method of claim 2 wherein the point of sale equipment includes a driver for controlling the device, the application interfacing with the driver when the application utilizes the device.

6. The method of claim 5 wherein the emulation object emulates the driver and the device.

7. A method for testing an application on a development system having an operating system, the application for use with point of sale equipment having a device, the application interfacing with the operating system and being capable of utilizing the device when the application is executed on the point of sale equipment, the method comprising the steps of:

(a) providing an emulation object interfacing directly with the operating system and corresponding to the device;

(b) ensuring that the application will utilize the emulation object when the application is executed on the development system;

(c) executing the application on the development system;

(d) ensuring that the application adequately utilizes the emulation object; and

(e) executing the application on the point of sale equipment;

wherein when the application is executed on the development system, the emulation module and the application emulate the interaction between the application and the device that occurs when the application is executed on the point of sale equipment;

wherein the emulation module and the application both interface directly with the operating system of the development system; and

wherein the device is specialized for the point of sale equipment.

8. A system, including an operating system, for developing an application for use with point of sale equipment having a device, the application interfacing with the operating system and capable of utilizing the device when the application is executed on the point of sale equipment, the system comprising:

an emulation module interfacing directly with the operating system and corresponding to the device; and

means for ensuring that the application will utilize the emulation module when the application is executed on the development system;

wherein when the application is executed on the system, the emulation module and the application emulate the interaction between the application and the device that occurs when the application is executed on the point of sale equipment;

wherein the emulation module and the application both interface directly with the operating system of the development system; and

wherein the device is specialized for the point of sale equipment.

9. The system of claim 8 wherein the emulation module further includes:

an emulation object corresponding to the device.

10. The system of claim 9 wherein the application is platform independent and the emulation object is platform independent.

11. The system of claim 10 wherein the application is a JAVA application and the emulation object is a JAVA emulation object.

12. The system of claim 9 wherein the point of sale equipment includes a driver for controlling the device, the application interfacing with the driver when the application utilizes the device.

13. The system of claim 12 wherein the emulation object emulates the driver and the device.

14. A computer readable medium containing at least one program for testing an application on a development system having an operating system, the application for use with point of sale equipment having a device, the application interfacing with the operating system and being capable of utilizing the device when the application is executed on the point of sale equipment, the program containing instructions for:

providing an emulation module interfacing directly with the operating system and corresponding to the device;

wherein the application is capable of utilizing the emulation module in lieu of the device when the application is executed on the development system and;

wherein when the application is executed on the development system, the emulation module and the application emulate the interaction between the application and the device that occurs when the application is executed on the point of sale equipment;

wherein the emulation module and the application both interface directly with the operating system of the development system; and

wherein the device is specialized for the point of sale equipment.

15. A computer readable medium containing at least one program for facilitating development of an application on a development system having an operating system, the application for use with point of sale equipment having a device, the application interfacing with the operating system and being capable of utilizing the device when the application is executed on the point of sale equipment, the program containing instructions for:

emulating the interaction between the application and the device using an emulation module interfacing directly with the operating system;

allowing a developer to provide input; and

providing the input to the application in a form expected from the device;

wherein the emulation module and the application both interface directly with the operating system of the development system; and

wherein the device is specialized for the point of sale equipment.